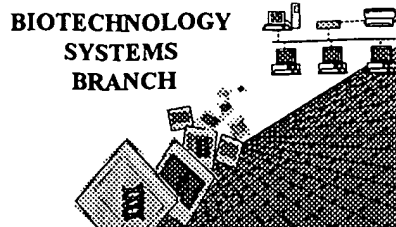


K. Kerr

#

BIOTECHNOLOGY
SYSTEMS
BRANCH

RAW SEQUENCE LISTING
ERROR REPORT



The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 09/710,2620
Source: 1000 R0017
Date Processed by STIC: 10/21/2002

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.

PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
- 2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY

FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-308-4212.

FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216.

PATENTIN 2.1 e-mail help: patin21help@uspto.gov or phone 703-306-4119 (R. Wax)

PATENTIN 3.0 e-mail help: patin3help@uspto.gov or phone 703-306-4119 (R. Wax)

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE **CHECKER VERSION 3.1 PROGRAM**, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW FOR ADDRESS:

<http://www.uspto.gov/web/offices/pac/checker>

Applicants submitting genetic sequence information electronically on diskette or CD-Rom should be aware that there is a possibility that the disk/CD-Rom may have been affected by treatment given to all incoming mail.

Please consider using alternate methods of submission for the disk/CD-Rom or replacement disk/CD-Rom.

Any reply including a sequence listing in electronic form should NOT be sent to the 20231 zip code address for the United States Patent and Trademark Office, and instead should be sent via the following to the indicated addresses:

1. EFS-Bio (<<http://www.uspto.gov/ebc/efs/downloads/documents.htm>> , EFS Submission User Manual - ePAVE)
2. U.S. Postal Service: U.S. Patent and Trademark Office, Box Sequence, P.O. Box 2327, Arlington, VA 22202
3. Hand Carry directly to:
U.S. Patent and Trademark Office, Technology Center 1600, Reception Area, 7th Floor, Examiner Name, Sequence Information, Crystal Mall One, 1911 South Clark Street, Arlington, VA 22202
Or
U.S. Patent and Trademark Office, Box Sequence, Customer Window, Lobby, Room 1B03, Crystal Plaza Two, 2011 South Clark Place, Arlington, VA 22202
4. Federal Express, United Parcel Service, or other delivery service to: U.S. Patent and Trademark Office, Box Sequence, Room 1B03-Mailroom, Crystal Plaza Two, 2011 South Clark Place, Arlington, VA 22202

Revised 01/29/2002

Raw Sequence Listing Error Summary

ERROR DETECTED

SUGGESTED CORRECTION

SERIAL NUMBER: 09/7/0,2620

ATTN: NEW RULES CASES: PLEASE DISREGARD ENGLISH "ALPHA" HEADERS, WHICH WERE INSERTED BY PTO SOFTWARE

- 1 ☐ Wrapped Nucleics
 Wrapped Aminos
 The number/text at the end of each line "wrapped" down to the next line. This may occur if your file was retrieved in a word processor after creating it. Please adjust your right margin to .3; this will prevent "wrapping."
- 2 ☐ Invalid Line Length
 The rules require that a line not exceed 72 characters in length. This includes white spaces.
- 3 ☒ Misaligned Amino
 Numbering
 The numbering under each 5th amino acid is misaligned. Do not use tab codes between numbers; use space characters, instead.
- 4 ☐ Non-ASCII
 The submitted file was not saved in ASCII(DOS) text, as required by the Sequence Rules. Please ensure your subsequent submission is saved in ASCII text.
- 5 ☐ Variable Length
 Sequence(s) _____ contain n's or Xaa's representing more than one residue. Per Sequence Rules, each n or Xaa can only represent a single residue. Please present the maximum number of each residue having variable length and indicate in the <220>-<223> section that some may be missing.
- 6 ☐ PatentIn 2.0
 "bug"
 A "bug" in PatentIn version 2.0 has caused the <220>-<223> section to be missing from amino acid sequences(s) _____. Normally, PatentIn would automatically generate this section from the previously coded nucleic acid sequence. Please manually copy the relevant <220>-<223> section to the subsequent amino acid sequence. This applies to the mandatory <220>-<223> sections for Artificial or Unknown sequences.
- 7 ☐ Skipped Sequences
 (OLD RULES)
 Sequence(s) _____ missing. If intentional, please insert the following lines for each skipped sequence:
 (2) INFORMATION FOR SEQ ID NO:X: (insert SEQ ID NO where "X" is shown)
 (i) SEQUENCE CHARACTERISTICS: (Do not insert any subheadings under this heading)
 (xi) SEQUENCE DESCRIPTION:SEQ ID NO:X: (insert SEQ ID NO where "X" is shown)
 This sequence is intentionally skipped

 Please also adjust the "(ii) NUMBER OF SEQUENCES:" response to include the skipped sequences.
- 8 ☐ Skipped Sequences
 (NEW RULES)
 Sequence(s) _____ missing. If intentional, please insert the following lines for each skipped sequence.
 <210> sequence id number
 <400> sequence id number
 000
- 9 ☐ Use of n's or Xaa's
 (NEW RULES)
 Use of n's and/or Xaa's have been detected in the Sequence Listing.
 Per 1.823 of Sequence Rules, use of <220>-<223> is MANDATORY if n's or Xaa's are present.
 In <220> to <223> section, please explain location of n or Xaa, and which residue n or Xaa represents.
- 10 ☐ Invalid <213>
 Response
 Per 1.823 of Sequence Rules, the only valid <213> responses are: Unknown, Artificial Sequence, or scientific name (Genus/species). <220>-<223> section is required when <213> response is Unknown or is Artificial Sequence
- 11 ☐ Use of <220>
 Sequence(s) _____ missing the <220> "Feature" and associated numeric identifiers and responses.
 Use of <220> to <223> is MANDATORY if <213> "Organism" response is "Artificial Sequence" or "Unknown." Please explain source of genetic material in <220> to <223> section.
 (See "Federal Register," 06/01/1998, Vol. 63, No. 104, pp. 29631-32) (Sec. 1.823 of Sequence Rules)
- 12 ☐ PatentIn 2.0
 "bug"
 Please do not use "Copy to Disk" function of PatentIn version 2.0. This causes a corrupted file, resulting in missing mandatory numeric identifiers and responses (as indicated on raw sequence listing). Instead, please use "File Manager" or any other manual means to copy file to floppy disk.
- 13 ☐ Misuse of n
 n can only be used to represent a single nucleotide in a nucleic acid sequence. N is not used to represent any value not specifically a nucleotide.



1600

RAW SEQUENCE LISTING

DATE: 10/21/2002

PATENT APPLICATION: US/09/710,262D

TIME: 16:29:22

Input Set : N:\Crf4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

1 <110> APPLICANT: Rosenberg, Eugene
 2 Ron, Elisha
 3 Orr, Elisha
 4 Paitan, Yossi
 5 <120> TITLE OF INVENTION: GENE CLUSTER
 6 <130> FILE REFERENCE: 2290.00101
 7 <140> CURRENT APPLICATION NUMBER: US/09/710,262D
 8 <141> CURRENT FILING DATE: 2000-11-10
 9 <160> NUMBER OF SEQ ID NOS: 20
 10 <170> SOFTWARE: PatentIn Ver. 2.1

Does Not Comply
 Corrected Diskette Needed

pp 1-24
 errors on each page

ERRORED SEQUENCES

12 <210> SEQ ID NO: 1
 13 <211> LENGTH: 2392
 14 <212> TYPE: Amino acid
 15 <213> ORGANISM: Myxococcus xanthus
 16 <400> SEQUENCE: 1
 17 Val Asp Pro Ala Arg Leu Thr Arg Ala Trp Glu Gly Leu Leu Glu Arg
 18 1 55 10 10 15 15
 19 Tyr Pro Leu Leu Ala Gly Ala Ile Arg Val Glu Gly Thr Glu Pro Val
 20 20 25 25 30 30
 21 Ile Val Pro Ser Gly Gln Val Ser Ala Glu Val His Glu Val Pro Ser
 22 35 35 40 40 45 45
 23 Val Ser Asp Ser Ala Leu Val Ala Thr Leu Arg Ala Ser Ala Lys Val
 24 50 55 60
 25 Pro Phe Asp Leu Ala Cys Gly Pro Leu Ala Arg Leu His Leu Tyr Ser
 26 65 70 75 80
 27 Arg Ser Glu His Glu His Val Leu Leu Leu Cys Phe His His Leu Val
 28 85 90 95
 29 Leu Asp Gly Ala Ser Val Ala Pro Leu Leu Asp Ala Leu Arg Glu Arg
 30 100 105 110
 31 Tyr Ala Gly Thr Glu Ala Lys Ala Gly Leu Leu Glu Val Pro Ile Val
 32 115 120 125
 33 Ala Pro Tyr Arg Ala Ala Val Glu Trp Glu Gln Leu Ala Ile Gly Gly
 34 130 135 140
 35 Asp Glu Gly Arg Arg His Leu Asp Tyr Trp Arg His Val Leu Ala Thr
 36 145 150 155 160
 37 Pro Val Pro Pro Pro Leu Asn Leu Pro Thr Asp Arg Pro Arg Ser Ala
 38 165 170 175
 39 Thr Gly Leu Asp Ser Glu Gly Ala Thr His Ser Gln Arg Val Pro Thr
 40 180 185 190

(global errors)
 ↓
 misaligned
 amino acid
 nos.

(see item 3
 on Error
 Summary
 Sheet)

RAW SEQUENCE LISTING

DATE: 10/21/2002

PATENT APPLICATION: US/09/710,262D

TIME: 16:29:22

Input Set : N:\Crf4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

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41  Glu Gln Ala Leu Arg Leu Arg Glu Phe Ala Arg Ala Gln Gln Val Ser
42      195                200                205
43  Leu Pro Thr Val Leu Leu Gly Leu Tyr Tyr Ala Leu Leu His Arg His
44      210                215                220
45  Thr Arg Gln Asp Asp Val Val Val Gly Ile Pro Thr Met Gly Arg Pro
46      225                230                235                240
47  Arg Ala Glu Leu Ala Thr Ala Ile Gly Tyr Phe Val Asn Val Met Ala
48      245                250                255
49  Val Arg Ala Arg Gly Leu Gly Gln His Ser Phe Gly Ser Leu Leu Arg
50      260                265                270
51  His Leu His Asp Ser Val Ile Asp Gly Leu Glu His Ala His Tyr Pro
52      275                280                285
53  Phe Pro Arg Val Val Lys Asp Leu Arg Leu Ser Asn Gly Pro Glu Glu
54      290                295                300
55  Ala Pro Gly Phe Gln Thr Met Phe Thr Phe Gln Ser Leu Gln Leu Thr
56      305                310                315                320
57  Ser Ala Pro Pro Arg Pro Glu Pro Arg Ser Gly Gly Leu Pro Glu Leu
58      325                330                335
59  Glu Pro Leu Asp Cys Val His Gln Glu Gly Ala Tyr Pro Leu Glu Leu
60      340                345                350
61  Glu Val Val Glu Gly Ala Lys Gly Leu Thr Leu His Phe Lys Tyr Asp
62      355                360                365
63  Ala Arg Leu Tyr Glu Ala Asp Thr Val Glu Arg Met Ala Arg Gln Leu
64      370                375                380
65  Leu Arg Ala Ala Asp Gln Val Ala Asp Gly Val Glu Ser Pro Leu Ser
66      385                390                395                400
67  Ala Leu Ser Trp Leu Asp Asp Glu Glu Arg Arg Thr Leu Leu Arg Asp
68      405                410                415
69  Trp Asn Ala Thr Ala Thr Pro Phe Leu Glu Asp Leu Gly Val His Glu
70      420                425                430
71  Leu Phe Gln Arg Gln Ala Arg Glu Thr Pro Asp Ala Met Ala Val Ser
72      435                440                445
73  Tyr Glu Gly His Ser Leu Ser Tyr Gln Ala Leu Asp Thr Arg Ser Arg
74      450                455                460
75  Glu Ile Ala Ala His Leu Lys Ser Phe Gly Val Lys Pro Gly Ala Leu
76      465                470                475                480
77  Val Gly Ile Tyr Leu Asp Arg Ser Ala Glu Leu Val Ala Ala Met Leu
78      485                490                495
79  Gly Val Leu Ser Ala Gly Ala Ala Tyr Val Pro Leu Asp Pro Val His
80      500                505                510
81  Pro Glu Asp Arg Leu Arg Tyr Met Leu Glu Asp Ser Gly Val Val Val
82      515                520                525
83  Val Leu Ala Arg Gln Ala Ser Arg Asp Lys Val Ala Ala Ile Ala Gly
84      530                535                540
85  Ala Ser Cys Lys Val Cys Val Leu Glu Asp Val Lys Ala Gly Ala Thr
86      545                550                555                560
87  Ser Ala Pro Ala Gly Thr Ser Pro Asn Gly Leu Ala Tyr Val Ile Tyr
88      565                570                575
89  Thr Ser Gly Ser Thr Gly Arg Pro Lys Gly Val Met Ile Pro His Arg

```

*same**len*

RAW SEQUENCE LISTING

DATE: 10/21/2002

PATENT APPLICATION: US/09/710,262D

TIME: 16:29:22

Input Set : N:\CrF4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

```

90          580          585          590
91 Gly Val Val Asn Phe Leu Leu Cys Met Arg Arg Thr Leu Gly Leu Lys
92          595          600          605
93 Arg Thr Asp Ser Leu Leu Ala Val Thr Thr Tyr Cys Phe Asp Ile Ala
94          610          615          620
95 Ala Leu Glu Leu Leu Leu Pro Leu Cys Ala Gly Ala Gln Val Ile Ile
96          625          630          635          640
97 Ala Ser Ala Glu Thr Val Arg Asp Ala Gln Ala Leu Lys Arg Ala Leu
98          645          650          655
99 Arg Thr His Arg Pro Thr Leu Met Gln Ala Thr Pro Ala Thr Trp Thr
100          660          665          670
101 Leu Leu Phe Gln Ser Gly Trp Glu Asn Ala Glu Arg Val Arg Ile Leu
102          675          680          685
103 Cys Gly Gly Glu Ala Leu Pro Glu Ser Leu Lys Ala His Phe Val Arg
104          690          695          700
105 Thr Ala Ser Asp Val Trp Asn Met Phe Gly Pro Thr Glu Thr Thr Ile
106          705          710          715          720
107 Trp Ser Thr Met Ala Lys Val Ser Ala Ser Arg Pro Val Thr Ile Gly
108          725          730          735
109 Lys Pro Ile Asp Asn Thr Gln Val Tyr Val Leu Asp Asp Arg Met Gln
110          740          745          750
111 Pro Val Pro Ile Gly Val Pro Gly Glu Leu Trp Ile Ala Gly Ala Gly
112          755          760          765
113 Val Ala Cys Gly Tyr Leu Asn Arg Pro Ala Leu Thr Ala Glu Arg Phe
114          770          775          780
115 Val Ser Asn Pro Phe Thr Pro Gly Thr Thr Leu Tyr Arg Thr Gly Asp
116          785          790          795          800
117 Leu Ala Arg Trp Arg Ala Asp Gly Glu Val Glu Tyr Leu Gly Arg Leu
118          805          810          815
119 Asp His Gln Val Lys Val Arg Gly Phe Arg Ile Glu Met Gly Glu Ile
120          820          825          830
121 Glu Ala Gln Leu Ala Gly His Pro Ser Val Lys Asn Cys Ala Val Val
122          835          840          845
123 Ala Lys Glu Leu Asn Gly Thr Ser Gln Leu Val Ala Tyr Cys Gln Pro
124          850          855          860
125 Ala Gly Thr Ser Phe Asp Glu Glu Ala Ile Arg Ala His Leu Arg Lys
126          865          870          875          880
127 Phe Leu Pro Asp Tyr Met Val Pro Ala His Val Phe Ala Val Asp Ala
128          885          890          895
129 Ile Pro Leu Ser Gly Asn Gly Lys Val Asp Arg Gly Gln Leu Met Ala
130          900          905          910
131 Arg Pro Val Val Thr Arg Arg Lys Thr Ser Ala Val His Ala Arg Ser
132          915          920          925
133 Pro Val Glu Ala Thr Leu Val Glu Leu Trp Lys Asn Val Leu Gln Val
134          930          935          940
135 Asn Glu Val Gly Val Glu Asp Arg Phe Phe Glu Val Gly Gly Asp Ser
136          945          950          955          960
137 Val Leu Ala Ala Val Leu Val Glu Glu Met Asn Arg Arg Phe Asp Thr
138          965          970          975

```

same

RAW SEQUENCE LISTING

DATE: 10/21/2002

PATENT APPLICATION: US/09/710,262D

TIME: 16:29:22

Input Set : N:\Cr4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

```

139 Arg Leu Ala Val Thr Asp Leu Phe Lys Tyr Val Asn Ile Arg Asp Met
140           980           985           990
141 Ala Arg His Met Glu Gly Ala Thr Ala Gln Ala Arg Thr Gly Ala Thr
142           995           1000           1005
143 Glu Pro Ala Arg Glu Asp Thr Ala Ser Glu Arg Asp Tyr Glu Gly Ser
144           1010           1015           1020
145 Leu Ala Val Ile Gly Ile Ser Cys Gln Leu Pro Gly Ala Ala Asp Pro
146           1025           1030           1035           1040
147 Trp Arg Phe Trp Lys Asn Leu Arg Glu Gly Arg Asp Ser Val Val Ala
148           1045           1050           1055
149 Tyr Arg His Glu Glu Leu Arg Glu Leu Gly Val Pro Glu Glu Val Leu
150           1060           1065           1070
151 Arg Asp Ser Arg Tyr Val Ala Val Arg Ser Ser Ile Glu Asp Lys Glu
152           1075           1080           1085
153 Cys Phe Asp Pro His Phe Phe Gly Leu Thr Ala Arg Asp Ala Ser Phe
154           1090           1095           1100
155 Met Asp Pro Gln Phe Arg Leu Leu Leu Met His Ala Trp Lys Ala Val
156           1105           1110           1115           1120
157 Glu Asp Ala Ala Thr Thr Pro Glu Arg Leu Gly Pro Cys Gly Val Phe
158           1125           1130           1135
159 Met Thr Ala Ser Asn Ser Phe Tyr His Gln Gly Ser Pro Gln Phe Pro
160           1140           1145           1150
161 Ala Asp Gly Gln Pro Val Leu Arg Thr Ala Glu Glu Tyr Val Leu Trp
162           1155           1160           1165
163 Val Leu Ala Gln Ala Gly Ser Ile Pro Thr Met Val Ser Tyr Lys Leu
164           1170           1175           1180
165 Gly Leu Lys Gly Pro Ser Leu Phe Val His Thr Asn Cys Ser Ser Ser
166           1185           1190           1195           1200
167 Leu Ser Ala Leu Tyr Val Ala Gln Gln Ala Ile Ala Ala Gly Asp Cys
168           1205           1210           1215
169 Gln Thr Ala Leu Val Gly Ala Ala Thr Val Phe Pro Ser Ala Asn Leu
170           1220           1225           1230
171 Gly Tyr Leu His Gln Arg Gly Leu Asn Phe Ser Ser Ala Gly Arg Val
172           1235           1240           1245
173 Lys Ala Phe Asp Ala Ala Ala Asp Gly Met Ile Ala Gly Glu Gly Val
174           1250           1255           1260
175 Ala Val Leu Val Val Lys Asp Ala Ala Ala Val Arg Asp Gly Asp
176           1265           1270           1275           1280
177 Pro Ile Tyr Cys Leu Val Arg Lys Val Gly Ile Asn Asn Asp Gly Gln
178           1285           1290           1295
179 Asp Lys Val Gly Leu Tyr Ala Pro Ser Ala Thr Gly Gln Ala Glu Val
180           1300           1305           1310
181 Ile Arg Arg Leu Phe Asp Arg Thr Gly Ile Asp Pro Ala Ser Ile Gly
182           1315           1320           1325
183 Tyr Val Glu Ala His Gly Thr Gly Thr Leu Leu Gly Asp Pro Val Glu
184           1330           1335           1340
185 Val Ser Ala Leu Ser Glu Ala Phe Arg Thr Phe Thr Asp Arg Arg Gly
186           1345           1350           1355           1360
187 Tyr Cys Arg Leu Gly Ser Val Lys Ser Asn Leu Gly His Leu Asp Thr

```

same

1) always
show one
space
between
last amino
acid number
and next
amino acid

e.g. Ala |^S Val
1080 |_P
 |_C

RAW SEQUENCE LISTING

DATE: 10/21/2002

PATENT APPLICATION: US/09/710,262D

TIME: 16:29:22

Input Set : N:\CrF4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

| | | | | | | | |
|-----|-----|------|-----|------|-----|------|-----|
| 188 | | 1365 | | 1370 | | 1375 | |
| 189 | Val | Ala | Gly | Leu | Ala | Gly | Leu |
| 190 | | | | | | | |
| 191 | Gly | Glu | Val | Pro | Pro | Thr | Leu |
| 192 | | | | | | | |
| 193 | Glu | Leu | Thr | Asp | Ser | Pro | Phe |
| 194 | | | | | | | |
| 195 | Pro | Ser | Leu | Pro | Gly | Pro | Arg |
| 196 | | | | | | | |
| 197 | Gly | Gly | Thr | Asn | Thr | His | Ala |
| 198 | | | | | | | |
| 199 | Arg | Pro | Arg | Glu | Arg | Ser | Gln |
| 200 | | | | | | | |
| 201 | Pro | Phe | Ser | Ala | Arg | Thr | Leu |
| 202 | | | | | | | |
| 203 | Leu | Leu | Asp | Phe | Leu | Glu | Asp |
| 204 | | | | | | | |
| 205 | Asp | Ile | Thr | Tyr | Thr | Leu | Gln |
| 206 | | | | | | | |
| 207 | Met | Val | Val | Thr | Ala | Ser | Thr |
| 208 | | | | | | | |
| 209 | Arg | Gly | Ile | Ala | Thr | Val | Gly |
| 210 | | | | | | | |
| 211 | Thr | Ser | Pro | Ser | Val | Asp | Ala |
| 212 | | | | | | | |
| 213 | Ala | Thr | Gly | Asp | Ser | Ile | Asp |
| 214 | | | | | | | |
| 215 | Pro | Ala | Arg | Val | Ser | Leu | Pro |
| 216 | | | | | | | |
| 217 | Gly | Leu | Ser | Pro | Ala | His | Ser |
| 218 | | | | | | | |
| 219 | Asp | Ala | Gly | Val | Pro | Leu | Phe |
| 220 | | | | | | | |
| 221 | Gly | Ala | Ser | Asn | Ala | Ser | Leu |
| 222 | | | | | | | |
| 223 | Glu | Pro | Leu | Asp | Ala | Leu | Gly |
| 224 | | | | | | | |
| 225 | Thr | Leu | Ala | Asp | Arg | Arg | Ile |
| 226 | | | | | | | |
| 227 | Ala | Arg | Leu | Asp | Ala | Arg | Phe |
| 228 | | | | | | | |
| 229 | Arg | Val | Lys | Ala | Leu | Leu | Ser |
| 230 | | | | | | | |
| 231 | Gln | Val | Leu | Val | Pro | Glu | Glu |
| 232 | | | | | | | |
| 233 | Gly | Ser | Leu | Leu | Arg | Ser | Val |
| 234 | | | | | | | |
| 235 | Gln | Leu | Ile | Arg | Val | Gln | Gly |
| 236 | | | | | | | |

same

RAW SEQUENCE LISTING

DATE: 10/21/2002

PATENT APPLICATION: US/09/710,262D

TIME: 16:29:22

Input Set : N:\CrF4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

237 Val Leu Val Lys Ser Ala Arg Ala Gly Asp Val Thr Asp Ser Arg Tyr
 238 1765 1770 1775
 239 His Ala Gly Gln Leu Ser Arg Cys Glu Trp Arg Glu Ala Arg Val Ala
 240 1780 1785 1790
 241 Lys Gly Asp Ala Ser Arg Phe Trp Arg Glu Asp Gly Val Tyr Val Ile
 242 1795 1800 1805
 243 Ser Gly Gly Thr Gly Ala Leu Ala Arg Leu Phe Val Ala Glu Ile Gly
 244 1810 1815 1820
 245 Lys Arg Ala Thr Arg Ala Thr Val Ile Leu Val Ala Arg Ala Ser Ser
 246 1825 1830 1835 1840
 247 Ala Glu Ala Val Asp Gly Gly Asn Gly Leu Arg Val Arg His Leu Pro
 248 1845 1850 1855
 249 Val Asp Val Thr Gln Pro Asn Asp Val Asn Ala Phe Val Ala Thr Val
 250 1860 1865 1870
 251 Leu Arg Glu His Gly Arg Ile Asp Gly Val Ile His Ala Ala Gly Ile
 252 1875 1880 1885
 253 Arg Arg Asp Asn Tyr Leu Leu Asn Lys Pro Val Ala Glu Met Gln Ala
 254 1890 1895 1900
 255 Val Leu Ala Pro Lys Val Val Gly Leu Val Asn Leu Asp His Ala Thr
 256 1905 1910 1915 1920
 257 Arg Glu Leu Pro Leu Asp Phe Phe Val Thr Phe Ser Ser Leu Ala Ala
 258 1925 1930 1935
 259 Phe Gly Asn Ala Gly Gln Ser Asp Tyr Ala Ala Ala Asn Gly Phe Met
 260 1940 1945 1950
 261 Asp Gly Phe Ala Glu Ser Arg Ala Ala Leu Val Asn Ala Gly Gln Arg
 262 1955 1960 1965
 263 Gln Gly Arg Thr Val Ser Ile Arg Trp Pro Leu Trp Glu Asn Gly Gly
 264 1970 1975 1980
 265 Met Gln Leu Asp Ser Arg Ser Arg Glu Val Leu Met Gln Arg Thr Gly
 266 1985 1990 1995 2000
 267 Met Ala Ala Leu Gly Asp Glu Ala Gly Leu Gly Ala Phe Tyr Arg Ala
 268 2005 2010 2015
 269 Leu Glu Leu Gly Ser Pro Gly Val Ala Val Trp Thr Gly Glu Ala Gln
 270 2020 2025 2030
 271 Arg Phe Arg Glu Leu Ser Val Ser Val Ser Pro Ala Pro Pro Pro His
 272 2035 2040 2045
 273 Gln Val Ala Leu Asp Ala Val Val Ser Ile Thr Glu Lys Val Glu Thr
 274 2050 2055 2060
 275 Lys Leu Lys Ala Leu Phe Ser Glu Val Thr Arg Tyr Glu Glu Arg Arg
 276 2065 2070 2075 2080
 277 Ile Asp Ala Arg Gln Pro Met Glu Arg Tyr Gly Ile Asp Ser Ile Ile
 278 2085 2090 2095
 279 Ile Thr Gln Met Asn Gln Ala Leu Glu Gly Pro Tyr Asn Ala Leu Ser
 280 2100 2105 2110
 281 Lys Thr Leu Phe Phe Glu Tyr Arg Thr Leu Ala Glu Val Ser Gly Tyr
 282 2115 2120 2125
 283 Leu Ala Glu His Arg Ala Glu Glu Ser Ala Lys Trp Val Ala Ala Pro
 284 2130 2135 2140
 285 Gly Glu Asn Ser Ser Ser Val Ile Gln Glu Ala Arg Pro Pro Arg Ala

RAW SEQUENCE LISTING

DATE: 10/21/2002

PATENT APPLICATION: US/09/710,262D

TIME: 16:29:22

Input Set : N:\Crf4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

```

286      2145      2150      2155      2160
287  Asp Ala Thr His Arg Ala Pro Arg Ala Asp Glu Pro Ile Ala Val Ile
288                2165      2170      2175
289  Gly Met Ser Gly Arg Tyr Pro Gly Ala Glu Asn Leu Thr Glu Phe Trp
290                2180      2185      2190
291  Glu Arg Leu Ser Arg Gly Asp Asp Cys Ile Thr Glu Ile Pro Pro Glu
292                2195      2200      2205
293  Arg Trp Ser Leu Asp Gly Phe Phe Tyr Pro Asp Lys Lys His Ala Ala
294                2210      2215      2220
295  Ala Arg Gly Met Ser Tyr Ser Lys Trp Gly Gly Phe Leu Gly Gly Phe
296      2225      2230      2235      2240
297  Ala Asp Phe Asp Pro Leu Phe Phe Asn Ile Ser Pro Arg Glu Ala Thr
298                2245      2250      2255
299  Ser Met Asp Pro Gln Glu Arg Leu Phe Leu Gln Ser Cys Trp Glu Val
300                2260      2265      2270
301  Leu Glu Asp Ala Gly Tyr Thr Arg Asp Ser Leu Ala Gln Arg Phe Gly
302                2275      2280      2285
303  Ser Ala Val Gly Val Phe Ala Gly Ile Thr Lys Thr Gly Tyr Glu Leu
304                2290      2295      2300
305  Tyr Gly Ala Glu Leu Glu Gly Arg Asp Ala Ser Val Arg Pro Tyr Thr
306      2305      2310      2315      2320
307  Ser Phe Ala Ser Val Ala Asn Arg Val Ser Tyr Leu Leu Asp Leu Lys
308                2325      2330      2335
309  Gly Pro Ser Met Pro Val Asp Thr Met Cys Ser Ala Ser Leu Thr Ala
310                2340      2345      2350
311  Val His Met Ala Cys Glu Ala Leu Gln Arg Gly Ala Cys Val Met Ala
312                2355      2360      2365
313  Ile Ala Gly Gly Val Asn Leu Tyr Val His Pro Ser Ser Tyr Val Ser
314                2370      2375      2380
315  Leu Ser Gly Gln Gln Met Leu Ser
316      2385      2390

```

444 <210> SEQ ID NO: 3

445 <211> LENGTH: 785

446 <212> TYPE: Amino acid PRT

447 <213> ORGANISM: Myxococcus xanthus

OK-> 448 <400> SEQUENCE: 3

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449  Met Lys Val Val Asn Lys Leu Leu Glu Lys Leu Pro Asp Val Val Ala
450      1          5          10          15
451  Gly Lys Val Pro Asp Val Lys Leu Gln Asp Gln Asp Ile Lys Val Pro
452      20          25          30
453  Leu Ala Gln Gly Thr Phe Thr Glu Glu Lys Ile Leu Pro Pro Lys Leu
454      35          40          45
455  Ala Met His Gly Phe Thr Leu Ser Phe Glu Ala Thr Gly Glu Ala Ser
456      50          55          60
457  Ile Arg Asn Phe Asn Ser Leu Gly Asp Val Asp Glu Asn Gly Ile Ile
458      65          70          75          80
459  Gly Glu Pro Ser Pro Glu Ser Ala Glu Pro Gly Pro Arg Pro Gln Leu
460      85          90          95
461  Leu Leu Gly Ser Asp Ile Gly Trp Met Arg Tyr Gln Val Ser Ala Arg

```

*same**same
misalignment
error*

RAW SEQUENCE LISTING

DATE: 10/21/2002

PATENT APPLICATION: US/09/710,262D

TIME: 16:29:22

Input Set : N:\Crf4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

```

462          100          105          110
463 Val Lys Ala Ala Val Ser Ala Ser Leu Ser Phe Leu Ala Ser Glu Asn
464          115          120          125
465 Gln Thr Glu Leu Ser Val Thr Leu Ser Asp Tyr Arg Ala His Pro Leu
466          130          135          140
467 Gly Gln Asn Met Arg Glu Ala Val Arg Ser Asp Leu Ser Glu Leu Arg
468          145          150          155          160
469 Leu Met Gln Ala Thr Asp Leu Ala Lys Leu Thr Thr Gly Asp Ala Val
470          165          170          175
471 Ala Trp His Val Arg Gly Ala Leu His Thr Arg Leu Glu Leu Asn Trp
472          180          185          190
473 Ala Asp Ile Phe Pro Thr Asn Leu Asn Arg Leu Gly Phe Leu Arg Gly
474          195          200          205
475 Asn Glu Leu Leu Ala Leu Lys Thr Ser Ala Lys Ala Gly Leu Ser Ala
476          210          215          220
477 Arg Val Ser Leu Thr Asp Asp Tyr Gln Leu Ser Phe Ser Arg Pro Arg
478          225          230          235          240
479 Ala Gly Arg Ile Gln Val Ala Val Arg Lys Val Lys Ser His Glu Gln
480          245          250          255
481 Ala Leu Ser Ala Gly Leu Gly Ile Thr Val Glu Leu Leu Asp Pro Ala
482          260          265          270
483 Thr Val Lys Ala Gln Leu Gly Gln Leu Leu Glu Ala Leu Leu Gly Pro
484          275          280          285
485 Val Leu Arg Asp Leu Val Lys Lys Gly Thr Thr Ala Val Glu Ile Met
486          290          295          300
487 Asp Gly Leu Val Asp Lys Ala Ser Lys Ala Lys Leu Asp Asp Asn Gln
488          305          310          315          320
489 Lys Lys Val Leu Gly Leu Val Leu Glu Arg Leu Gly Ile Asp Pro Gln
490          325          330          335
491 Leu Ala Asp Pro Ala Asn Leu Pro Gln Ala Trp Ala Asp Phe Lys Ala
492          340          345          350
493 Arg Val Ala Glu Ser Leu Glu Asn Ala Val Arg Thr Gln Val Ala Glu
494          355          360          365
495 Gly Phe Glu Tyr Glu Tyr Leu Arg Leu Ser Glu Thr Ser Thr Leu Leu
496          370          375          380
497 Glu Val Val Val Glu Asp Val Thr Ala Met Arg Phe His Glu Ser Leu
498          385          390          395          400
499 Leu Lys Gly Asn Leu Val Glu Leu Leu Lys Trp Met Lys Ser Leu Pro
500          405          410          415
501 Ala Gln Gln Ser Glu Phe Glu Leu Arg Asn Tyr Leu His Ala Thr Thr
502          420          425          430
503 Leu Thr Arg Gln Gln Ala Ile Gly Phe Ser Leu Gly Leu Gly Ser Phe
504          435          440          445
505 Glu Leu Leu Lys Ala Lys Asn Val Ser Lys Gln Ser Trp Val Thr Gln
506          450          455          460
507 Glu Asn Phe Gln Gly Ala Arg Arg Met Ala Phe Leu Gly Arg Arg Gly
508          465          470          475          480
509 Tyr Glu Asp Lys Leu Leu Gly Thr Arg Gly Gln Trp Val Val Asp Leu
510          485          490          495

```

same

RAW SEQUENCE LISTING

DATE: 10/21/2002

PATENT APPLICATION: US/09/710,262D

TIME: 16:29:22

Input Set : N:\Crf4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

```

511 Lys Ala Asp Met Thr Arg Phe Ser Pro Thr Pro Val Ala Ser Asp Phe
512           500           505           510
513 Gly Tyr Gly Leu His Leu Met Leu Trp Gly Arg Gln Lys Lys Leu Ser
514           515           520           525
515 Arg Lys Asp Leu Gln Gln Ala Val Asp Asp Ala Val Val Trp Gly Val
516           530           535           540
517 Leu Asp Ala Lys Asp Ala Ala Thr Val Ile Ser Thr Met Gln Glu Asp
518           545           550           555           560
519 Met Gly Lys His Pro Ile Glu Thr Arg Leu Glu Leu Lys Met Ala Asp
520           565           570           575
521 Asp Ser Phe Arg Ala Leu Val Pro Arg Ile Gln Thr Leu Glu Leu Ser
522           580           585           590
523 Arg Phe Ser Arg Ala Leu Ala Arg Ala Leu Pro Trp Ser Glu Gln Leu
524           595           600           605
525 Pro Arg Ala Ser Ala Glu Phe Arg Arg Ala Val Tyr Ala Pro Ile Trp
526           610           615           620
527 Glu Ala Tyr Leu Arg Glu Val Gln Glu Gln Gly Ser Leu Met Leu Asn
528           625           630           635           640
529 Asp Leu Ser Pro Ser Arg Ala Ala Gln Ile Ala Lys Trp Tyr Phe Gln
530           645           650           655
531 Lys Asp Pro Thr Val Arg Asp Leu Gly Lys Asp Leu Gln Leu Ile Glu
532           660           665           670
533 Ser Glu Trp Arg Pro Gly Gly Gly Asn Phe Ser Phe Ala Glu Val Ile
534           675           680           685
535 Ser Lys Asn Pro Asn Thr Leu Met Arg Cys Arg Asn Phe Val Ser Gly
536           690           695           700
537 Met Val Arg Leu Arg Arg Ala Ile Asp Glu Arg Lys Ala Pro Asp Glu
538           705           710           715           720
539 Leu Arg Thr Val Phe Gly Glu Leu Glu Gly Met Trp Thr Thr Gly Phe
540           725           730           735
541 His Leu Arg Ala Ala Gly Ser Leu Leu Ser Asp Leu Ala Gln Ser Thr
542           740           745           750
543 Pro Leu Gly Leu Ala Gly Val Glu Arg Thr Leu Thr Val Arg Val Ala
544           755           760           765
545 Asp Ser Glu Glu Gln Leu Val Phe Ser Thr Ala Arg Ser Thr Gly Ala
546           770           775           780
547 Ala
548 785
550 <210> SEQ ID NO: 4
551 <211> LENGTH: 529
552 <212> TYPE: Amino acid PRT
553 <213> ORGANISM: Myxococcus xanthus
554 <400> SEQUENCE: 4
555 Met Pro Ser Gly Cys Tyr Gly Ala Ala Ser Ala Phe Val Leu Pro Pro
556   1           5           10           15
557 Leu Pro Ala Met Pro Gln Ala Pro Ser Asp Val Ser Gln Val Leu Leu
558           20           25           30
559 Pro Phe Gly Gly Leu Val Gly Arg Glu Val Asp Leu Asp Ala Phe Leu
560           35           40           45

```

*same**same*

RAW SEQUENCE LISTING

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TIME: 16:29:22

Input Set : N:\CrF4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

```

561   Gln Thr Leu Met Asp Arg Ile Ala Ile Thr Leu Gln Ala Asp Arg Gly
562       50               55               60
563   Thr Leu Trp Leu Leu Asp Pro Ala Arg Arg Glu Leu Phe Ser Arg Ala
564   65               70               75               80
565   Ala His Leu Pro Glu Val Ser Gln Ile Arg Val Lys Leu Gly Gln Gly
566               85               90               95
567   Val Ala Gly Thr Val Ala Lys Ala Gly His Ala Ile Asn Val Pro Asp
568       100               105               110
569   Pro Arg Gly Glu Gln Arg Phe Phe Ala Asp Ile Asp Arg Met Thr Gly
570       115               120               125
571   Tyr Arg Thr Thr Ser Leu Leu Ala Val Pro Leu Arg Asp Gly Asp Gly
572       130               135               140
573   Ala Leu Tyr Gly Val Leu Gln Val Leu Asn Arg Arg Gly Glu Asp Arg
574   145               150               155               160
575   Phe Thr Asp Glu Asp Thr Gln Arg Leu Thr Ala Ile Ala Ser Gln Val
576       165               170               175
577   Ser Thr Ala Leu Gln Ser Thr Ser Leu Tyr Gln Glu Leu Gln Arg Ala
578       180               185               190
579   Lys Glu Gln Pro Gln Val Pro Val Gly Tyr Phe Phe Asn Arg Ile Ile
580       195               200               205
581   Gly Glu Ser Pro Gln Leu Gln Ala Ile Tyr Arg Leu Val Arg Lys Ala
582       210               215               220
583   Ala Pro Thr Asp Ala Thr Val Leu Leu Arg Gly Glu Ser Gly Ser Gly
584   225               230               235               240
585   Lys Glu Leu Phe Ala Arg Ala Val His Val Asn Gly Pro Arg Arg Asp
586       245               250               255
587   Gln Pro Phe Ile Lys Val Asp Cys Ala Ala Leu Pro Ala Thr Leu Ile
588       260               265               270
589   Glu Asn Glu Leu Phe Gly His Glu Arg Gly Ala Phe Thr Gly Ala Asp
590       275               280               285
591   His Arg Val Pro Gly Lys Phe Glu Ala Ala Ser Gly Gly Thr Val Phe
592       290               295               300
593   Ile Asp Glu Ile Gly Glu Leu Pro Leu Pro Val Gln Gly Lys Leu Leu
594   305               310               315               320
595   Arg Val Ile Gln Asp Arg Glu Phe Glu Arg Val Gly Gly Thr Gln Ala
596       325               330               335
597   Val Lys Val Asp Val Arg Ile Val Ala Ala Thr His Arg Asp Leu Ala
598       340               345               350
599   Arg Met Val Ala Glu Gly Arg Phe Arg Glu Asp Leu Tyr Tyr Arg Ile
600       355               360               365
601   Lys Val Val Glu Val Val Leu Pro Pro Leu Arg Glu Arg Gly Ala Glu
602       370               375               380
603   Asp Ile Glu Arg Leu Ala Arg His Phe Val Ala Ala Val Ala Arg Arg
604   385               390               395               400
605   His Arg Leu Thr Pro Pro Arg Leu Ser Ala Ala Ala Val Glu Arg Leu
606       405               410               415
607   Lys Arg Tyr Arg Trp Pro Gly Asn Val Arg Glu Leu Glu Asn Cys Ile
608       420               425               430
609   Glu Ser Ala Val Val Leu Cys Glu Gly Glu Ile Leu Glu Glu His Leu

```

same

RAW SEQUENCE LISTING

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TIME: 16:29:22

Input Set : N:\CrF4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

610 435 440 445
611 Pro Leu Pro Asp Val Asp Arg Ala Ala Leu Pro Pro Pro Ala Ala Ala
612 450 455 460
613 Gln Gly Val Asn Ala Pro Thr Ala Pro Ala Pro Leu Asp Ala Gly Leu
614 465 470 475 480
615 Leu Pro Leu Ala Glu Val Glu Arg Arg His Ile Leu Arg Val Leu Asp
616 485 490 495
617 Ala Val Lys Gly Asn Arg Thr Ala Ala Arg Val Leu Ala Ile Gly
618 500 505 510
619 Arg Asn Thr Leu Ala Arg Lys Leu Lys Glu Tyr Gly Leu Gly Asp Glu
620 515 520 525
621 Pro
623 <210> SEQ ID NO: 5
624 <211> LENGTH: 292
625 <212> TYPE: Amino acid PRT
626 <213> ORGANISM: Myxococcus xanthus
OK-> 627 <400> SEQUENCE: 5
628 Met Arg Ala Ser Gln Ala Glu Ala Pro His Ser Arg Arg Leu Thr Met
629 1 5 10 15
630 Glu Val Arg Phe His Gly Val Arg Gly Ser Ile Ala Val Ser Gly Ser
631 20 25 30
632 Arg Ile Gly Gly Asn Thr Ala Cys Val Glu Val Thr Ser Gln Gly His
633 35 40 45
634 Arg Leu Ile Leu Asp Ala Gly Thr Gly Ile Arg Ala Leu Gly Glu Ile
635 50 55 60
636 Met Met Arg Glu Gly Ala Pro Gln Glu Ala Thr Leu Phe Phe Ser His
637 65 70 75 80
638 Leu His Trp Asp His Val Gln Gly Phe Pro Phe Phe Thr Pro Ala Trp
639 85 90 95
640 Leu Pro Thr Ser Glu Leu Thr Leu Tyr Gly Pro Gly Ala Asn Gly Ala
641 100 105 110
642 Gln Ala Leu Gln Ser Glu Leu Ala Ala Gln Met Gln Pro Leu His Phe
643 115 120 125
644 Pro Val Pro Leu Ser Thr Met Arg Ser Arg Met Asp Phe Arg Ser Ala
645 130 135 140
646 Leu His Ala Arg Pro Val Glu Val Gly Pro Phe Arg Val Thr Pro Ile
647 145 150 155 160
648 Asp Val Pro His Pro Gln Gly Cys Leu Ala Tyr Arg Leu Glu Ala Asp
649 165 170 175
650 Gly His Ser Phe Val Tyr Ala Thr Asp Val Glu Val Arg Val Gln Glu
651 180 185 190
652 Leu Ala Pro Glu Val Gly Arg Leu Phe Glu Gly Ala Asp Val Leu Cys
653 195 200 205
654 Leu Asp Ala Gln Tyr Thr Pro Asp Glu Tyr Glu Gly Arg Lys Gly Val
655 210 215 220
656 Ala Lys Lys Gly Trp Gly His Ser Thr Met Met Asp Ala Ala Gly Val
657 225 230 235 240
658 Ala Gly Leu Val Gly Ala Arg Arg Leu Cys Leu Phe His His Asp Pro
659 245 250 255

same

RAW SEQUENCE LISTING

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TIME: 16:29:22

Input Set : N:\CrF4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

660 Ala His Gly Asp Asp Met Leu Glu Asp Met Ala Glu Gln Ala Arg Ala
 661 260 265 270
 662 Leu Phe Pro Val Cys Glu Pro Ala Arg Glu Gly Gln Arg Leu Val Leu
 663 275 280 285
 664 Gly Arg Ala Ala
 665 290

667 <210> SEQ ID NO: 6

668 <211> LENGTH: 168

669 <212> TYPE: Amino acid

670 <213> ORGANISM: Myxococcus xanthus

671 <400> SEQUENCE: 6

672 Met Pro Gly Pro Arg Cys Ala Glu Asn Asp Trp Val Ala Leu Leu Val
 673 1 5 10 15
 674 Arg Val Asn His Glu Lys Val Ala Ala Gln Leu Gly Lys His Gly
 675 20 25 30
 676 Tyr Glu Phe Phe Leu Pro Thr Tyr Thr Pro Pro Lys Ser Ser Gly Val
 677 35 40 45
 678 Lys Ala Lys Leu Pro Leu Phe Pro Gly Tyr Leu Phe Cys Arg Tyr Gln
 679 50 55 60
 680 Pro Leu Asn Pro Tyr Arg Ile Val Arg Ala Pro Gly Val Ile Arg Leu
 681 65 70 75 80
 682 Leu Gly Gly Asp Ala Gly Pro Glu Ala Val Pro Ala Gln Glu Leu Glu
 683 85 90 95
 684 Ala Ile Arg Arg Val Ala Asp Ser Gly Val Ser Ser Asn Pro Cys Asp
 685 100 105 110
 686 Tyr Leu Arg Val Gly Gln Arg Val Arg Ile Ile Glu Gly Pro Leu Thr
 687 115 120 125
 688 Gly Leu Glu Gly Ser Leu Val Thr Ser Lys Ser Gln Leu Arg Phe Ile
 689 130 135 140
 690 Val Ser Val Gly Leu Leu Gln Arg Ser Val Ser Val Glu Val Ser Ala
 691 145 150 155 160
 692 Glu Gln Leu Glu Pro Ile Thr Asp
 693 165

695 <210> SEQ ID NO: 7

696 <211> LENGTH: 79

697 <212> TYPE: Amino acid

698 <213> ORGANISM: Myxococcus xanthus

699 <400> SEQUENCE: 7

700 Met Asp Lys Arg Ile Ile Phe Asp Ile Val Thr Ser Ser Val Arg Glu
 701 1 5 10 15
 702 Val Val Pro Glu Leu Glu Ser His Pro Phe Glu Pro Glu Asp Asp Leu
 703 20 25 30
 704 Val Gly Leu Gly Ala Asn Ser Leu Asp Arg Ala Glu Ile Val Asn Leu
 705 35 40 45
 706 Thr Leu Glu Lys Leu Ala Leu Asn Ile Pro Arg Val Glu Leu Ile Asp
 707 50 55 60
 708 Ala Lys Thr Ile Gly Gly Leu Val Asp Val Leu His Ala Arg Leu
 709 65 70 75
 711 <210> SEQ ID NO: 8

same

RAW SEQUENCE LISTING

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PATENT APPLICATION: US/09/710,262D

TIME: 16:29:22

Input Set : N:\Crf4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

712 <211> LENGTH: 420
 713 <212> TYPE: Amino acid
 714 <213> ORGANISM: Myxococcus xanthus
 715 <400> SEQUENCE: 8
 716 Met Gly Pro Val Gly Ile Glu Ala Met Asn Ala Tyr Cys Gly Ile Ala
 717 1 5 10 15
 718 Arg Leu Asp Val Leu Gln Leu Ala Thr His Arg Gly Leu Asp Thr Ser
 719 20 25 30
 720 Arg Phe Ala Asn Leu Leu Met Glu Glu Lys Thr Val Pro Leu Pro Tyr
 721 35 40 45
 722 Glu Asp Pro Val Thr Tyr Gly Val Asn Ala Ala Arg Pro Ile Leu Asp
 723 50 55 60
 724 Gln Leu Thr Ala Ala Glu Arg Asp Ser Ile Glu Leu Leu Val Ala Cys
 725 65 70 75 80
 726 Thr Glu Ser Ser Phe Asp Phe Gly Lys Ala Met Ser Thr Tyr Leu His
 727 85 90 95
 728 Gln His Leu Gly Leu Ser Arg Asn Cys Arg Leu Ile Glu Leu Lys Ser
 729 100 105 110
 730 Ala Cys Tyr Ser Gly Val Ala Gly Leu Gln Met Ala Val Asn Phe Ile
 731 115 120 125
 732 Leu Ser Gly Val Ser Pro Gly Ala Lys Ala Leu Val Val Ala Ser Asp
 733 130 135 140
 734 Leu Ser Arg Phe Ser Ile Ala Glu Gly Gly Asp Ala Ser Thr Glu Asp
 735 145 150 155 160
 736 Trp Ser Phe Ala Glu Pro Ser Ser Gly Ala Gly Ala Val Ala Met Leu
 737 165 170 175
 738 Val Ser Asp Thr Pro Arg Val Phe Arg Val Asp Val Gly Ala Asn Gly
 739 180 185 190
 740 Tyr Tyr Gly Tyr Glu Val Met Asp Thr Cys Arg Pro Val Ala Asp Ser
 741 195 200 205
 742 Glu Ala Gly Asp Ala Asp Leu Ser Leu Leu Ser Tyr Leu Asp Cys Cys
 743 210 215 220
 744 Glu Asn Ala Phe Arg Glu Tyr Thr Arg Arg Val Pro Ala Ala Asn Tyr
 745 225 230 235 240
 746 Ala Glu Ser Phe Gly Tyr Leu Ala Phe His Thr Pro Phe Gly Gly Met
 747 245 250 255
 748 Val Lys Gly Ala His Arg Thr Met Met Arg Lys Phe Ser Gly Lys Asn
 749 260 265 270
 750 Arg Gly Asp Ile Glu Ala Asp Phe Gln Arg Arg Val Ala Pro Gly Leu
 751 275 280 285
 752 Thr Tyr Cys Gln Arg Val Gly Asn Ile Met Gly Ala Thr Met Ala Leu
 753 290 295 300
 754 Ser Leu Leu Gly Thr Ile Asp His Gly Asp Phe Ala Thr Ala Lys Arg
 755 305 310 315 320
 756 Ile Gly Cys Phe Ser Tyr Gly Ser Gly Cys Ser Ser Glu Phe Phe Ser
 757 325 330 335
 758 Gly Val Val Thr Glu Glu Gly Gln Gln Arg Gln Arg Ala Leu Gly Leu
 759 340 345 350
 760 Gly Glu Ala Leu Gly Arg Arg Gln Gln Leu Ser Met Pro Asp Tyr Asp

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Input Set : N:\CrF4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

761 355 360 365
 762 Ala Leu Leu Lys Gly Asn Gly Leu Val Arg Phe Gly Thr Arg Asn Ala
 763 370 375 380
 764 Glu Leu Asp Phe Gly Val Val Gly Ser Ile Arg Pro Gly Gly Trp Gly
 765 385 390 395 400
 766 Arg Pro Leu Leu Phe Leu Ser Ala Ile Arg Asp Phe His Arg Asp Tyr
 767 405 410 415
 768 Gln Trp Ile Ser
 769 420
 771 <210> SEQ ID NO: 9
 772 <211> LENGTH: 325
 773 <212> TYPE: Amino acid
 774 <213> ORGANISM: Myxococcus xanthus
 775 <400> SEQUENCE: 9
 776 Met Ser Ser Val Ala Thr Ala Val Pro Leu Thr Ala Arg Asp Ser Ala
 777 1 5 10 15
 778 Val Ser Arg Arg Leu Arg Ile Thr Pro Ser Met Cys Gly Gln Thr Ser
 779 20 25 30
 780 Leu Phe Ala Gly Gln Ile Gly Asp Trp Ala Trp Asp Thr Val Ser Arg
 781 35 40 45
 782 Leu Cys Gly Thr Asp Val Leu Thr Ala Thr Asn Ala Ser Gly Ala Pro
 783 50 55 60
 784 Thr Tyr Leu Ala Phe Tyr Tyr Phe Arg Ile Arg Gly Thr Pro Ala Leu
 785 65 70 75 80
 786 His Pro Gly Ala Leu Arg Phe Gly Asp Thr Leu Asp Val Thr Ser Lys
 787 85 90 95
 788 Ala Tyr Asn Phe Gly Ser Glu Ser Val Leu Thr Val His Arg Ile Cys
 789 100 105 110
 790 Lys Thr Ala Glu Gly Gly Ala Pro Glu Ala Asp Ala Phe Gly His Glu
 791 115 120 125
 792 Glu Leu Tyr Glu Gln Pro Gln Pro Gly Arg Ile Tyr Ala Glu Thr Phe
 793 130 135 140
 794 Asn Arg Trp Ile Thr Arg Ser Asp Gly Lys Ser Asn Glu Ser Leu Ile
 795 145 150 155 160
 796 Lys Ser Ser Pro Val Gly Phe Gln Tyr Ala His Leu Pro Leu Leu Pro
 797 165 170 175
 798 Asp Glu Tyr Ser Pro Arg Arg Ala Tyr Gly Asp Ala Arg Ala Arg Gly
 799 180 185 190
 800 Thr Phe His Asp Val Asp Ser Ala Glu Tyr Arg Leu Thr Val Asp Arg
 801 195 200 205
 802 Phe Pro Leu Arg Tyr Ala Val Asp Val Ile Arg Asp Val Asn Gly Val
 803 210 215 220
 804 Gly Leu Ile Tyr Phe Ala Ser Tyr Phe Ser Met Val Asp Trp Ala Ile
 805 225 230 235 240
 806 Trp Gln Leu Ala Arg His Gln Gly Arg Ser Glu Gln Ala Phe Leu Ser
 807 245 250 255
 808 Arg Val Val Leu Asp Gln Gln Leu Cys Phe Leu Gly Asn Ala Ala Leu
 809 260 265 270
 810 Asp Thr Thr Phe Asp Ile Asp Val Gln His Trp Glu Arg Val Gly Gly

same

RAW SEQUENCE LISTING

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TIME: 16:29:22

Input Set : N:\Crf4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

```

811          275          280          285
812 Gly Glu Glu Leu Phe Asn Val Lys Met Arg Glu Gly Ala Gln Gly Arg
813          290          295          300
814 Asp Ile Ala Val Ala Thr Val Lys Val Arg Phe Asp Ala Ala Ser Glu
815          305          310          315          320
816 Gly Gly Arg Arg Gly
817          325

```

819 <210> SEQ ID NO: 10

820 <211> LENGTH: 83

821 <212> TYPE: Amino acid

822 <213> ORGANISM: Myxococcus xanthus

Ok> 823 <400> SEQUENCE: 10

```

824 Met Thr Asp Glu Gln Ile Arg Gly Val Val His Gln Ser Ile Val Arg
825      1          5          10          15
826 Val Leu Pro Arg Val Arg Ser Asn Glu Ile Ala Gly His Leu Asn Leu
827          20          25          30
828 Arg Glu Leu Gly Ala Asp Ser Val Asp Arg Val Glu Ile Leu Thr Ser
829          35          40          45
830 Ile Leu Asp Ser Leu Arg Leu Gln Lys Thr Pro Leu Ala Lys Phe Ala
831      50          55          60
832 Asp Ile Arg Asn Ile Asp Ala Leu Val Ala Phe Leu Ala Gly Glu Val
833      65          70          75          80
834 Ala Gly Gly

```

836 <210> SEQ ID NO: 11

837 <211> LENGTH: 374

838 <212> TYPE: Amino acid

839 <213> ORGANISM: Myxococcus xanthus

Ok> 840 <400> SEQUENCE: 11

```

841 Met Met Gln Glu Arg Gly Val Ala Leu Pro Phe Glu Asp Pro Val Thr
842      1          5          10          15
843 Asn Ala Val Asn Ala Ala Arg Pro Ile Leu Asp Ala Met Ser Pro Glu
844          20          25          30
845 Ala Arg Glu Arg Ile Glu Leu Val Thr Ser Ser Glu Ser Gly Val
846          35          40          45
847 Asp Phe Ser Lys Ser Ile Ser Ser Tyr Ala His Glu His Leu Gly Leu
848          50          55          60
849 Ser Arg His Cys Arg Phe Leu Glu Val Lys Gln Ala Cys Tyr Ala Ala
850      65          70          75          80
851 Thr Gly Ala Leu Gln Leu Ala Leu Gly Tyr Ile Ala Ser Gly Val Ser
852          85          90          95
853 Pro Gly Ala Lys Ala Leu Val Ile Ala Thr Asp Val Thr Leu Val Asp
854          100          105          110
855 Glu Ser Gly Leu Tyr Ser Glu Pro Ala Met Gly Thr Gly Gly Val Ala
856          115          120          125
857 Val Leu Leu Gly Asp Glu Pro Arg Val Met Lys Met Asp Leu Gly Ala
858          130          135          140
859 Phe Gly Asn Tyr Ser Tyr Asp Val Phe Asp Thr Ala Arg Pro Ser Pro
860          145          150          155          160
861 Glu Ile Asp Ile Gly Asp Val Asp Arg Ser Leu Phe Thr Tyr Leu Asp

```

same

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TIME: 16:29:22

Input Set : N:\CrF4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

```

862          165          170          175
863 Cys Leu Lys His Ser Phe Ala Ala Tyr Gly Arg Arg Val Asp Gly Val
864          180          185          190
865 Asp Phe Val Ser Thr Phe Asp Tyr Leu Ala Met His Thr Pro Phe Ala
866          195          200          205
867 Gly Leu Val Lys Ala Gly His Arg Lys Met Met Arg Glu Leu Thr Pro
868          210          215          220
869 Cys Asp Val Asp Glu Ile Glu Ala Asp Phe Gly Arg Arg Val Lys Pro
870          225          230          235          240
871 Ser Leu Gln Tyr Pro Ser Leu Val Gly Asn Leu Cys Ser Gly Ser Val
872          245          250          255
873 Tyr Leu Ser Leu Cys Ser Ile Ile Asp Thr Ile Lys Pro Glu Arg Ser
874          260          265          270
875 Ala Arg Val Gly Met Phe Ser Tyr Gly Ser Gly Cys Ser Ser Glu Phe
876          275          280          285
877 Phe Ser Gly Val Ile Gly Pro Glu Ser Val Ser Ala Leu Ala Gly Leu
878          290          295          300
879 Asp Ile Gly Gly His Leu Arg Gly Arg Arg Gln Leu Thr Phe Asp Gln
880          305          310          315          320
881 Tyr Val Glu Leu Leu Lys Glu Asn Leu Arg Cys Leu Val Pro Thr Lys
882          325          330          335
883 Asn Arg Asp Val Asp Val Glu Arg Tyr Leu Pro Leu Val Thr Arg Thr
884          340          345          350
885 Ala Ser Arg Pro Arg Met Leu Ala Leu Arg Arg Val Val Asp Tyr His
886          355          360          365
887 Arg Gln Tyr Glu Trp Val
888          370
890 <210> SEQ ID NO: 12
891 <211> LENGTH: 171
892 <212> TYPE: Amino acid
893 <213> ORGANISM: Myxococcus xanthus
894 <400> SEQUENCE: 12
895 Met Asn Thr Pro Ser Leu Thr Asn Trp Pro Ala Arg Leu Gly Tyr Leu
896          1          5          10          15
897 Leu Ala Val Gly Gly Ala Trp Phe Ala Ala Asp Gln Val Thr Lys Gln
898          20          25          30
899 Met Ala Arg Asp Gly Ala Lys Arg Pro Val Ala Val Phe Asp Ser Trp
900          35          40          45
901 Trp His Phe His Tyr Val Glu Asn Arg Ala Gly Ala Phe Gly Leu Phe
902          50          55          60
903 Ser Ser Phe Gly Glu Glu Trp Arg Met Pro Phe Phe Tyr Val Val Gly
904          65          70          75          80
905 Ala Ile Cys Ile Val Leu Leu Ile Gly Tyr Tyr Phe Tyr Thr Pro Pro
906          85          90          95
907 Thr Met Lys Leu Gln Arg Trp Ser Leu Ala Thr Met Ile Gly Gly Ala
908          100          105          110
909 Leu Gly Asn Tyr Val Asp Arg Val Arg Leu Arg Tyr Val Val Asp Phe
910          115          120          125
911 Val Ser Trp His Val Gly Asp Arg Phe Tyr Trp Pro Ser Phe Asn Ile

```

same

OK>

RAW SEQUENCE LISTING

DATE: 10/21/2002

PATENT APPLICATION: US/09/710,262D

TIME: 16:29:22

Input Set : N:\Crif4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

912 130 135 140
 913 Ala Asp Thr Ala Val Val Val Gly Ala Ala Leu Met Ile Leu Glu Ser
 914 145 150 155 160
 915 Phe Arg Glu Pro Arg Gln Gln Leu Ser Pro Gly
 916 165 170
 918 <210> SEQ ID NO: 13
 919 <211> LENGTH: 475
 920 <212> TYPE: Amino acid
 921 <213> ORGANISM: Myxococcus xanthus
 E-922 <400> SEQUENCE: 13
 923 Met Gly Thr Ser Glu Pro Val Glu Pro Asp His Ala Leu Ser Lys Pro
 924 1 5 10 15
 925 Pro Pro Val Ala Pro Val Gly Ala Gln Ala Leu Pro Arg Gly Pro Ala
 926 20 25 30
 927 Met Pro Gly Ile Ala Gln Leu Met Met Leu Phe Leu Arg Pro Thr Glu
 928 35 40 45
 929 Phe Leu Asp Arg Cys Ala Ala Arg Tyr Gly Asp Thr Phe Thr Leu Lys
 930 50 55 60
 931 Ile Pro Gly Thr Pro Pro Phe Ile Gln Thr Ser Asp Pro Ala Leu Ile
 932 65 70 75 80
 933 Glu Val Ile Phe Lys Gly Asp Pro Asp Leu Phe Leu Gly Gly Lys Ala
 934 85 90 95
 935 Asn Asn Gly Leu Lys Pro Val Val Gly Glu Asn Ser Leu Leu Val Leu
 936 100 105 110
 937 Asp Gly Lys Arg His Arg Arg Asp Arg Lys Leu Ile Met Pro Thr Phe
 938 115 120 125
 939 Leu Gly Glu Arg Met His Ala Tyr Gly Ser Val Ile Arg Asp Ile Val
 940 130 135 140
 941 Asn Ala Ala Leu Asp Arg Trp Pro Val Gly Lys Pro Phe Ala Val His
 942 145 150 155 160
 943 Glu Glu Thr Gln Gln Ile Met Leu Glu Val Ile Leu Arg Val Ile Phe
 944 165 170 175
 945 Gly Leu Glu Asp Ala Arg Thr Ile Ala Gln Phe Arg His His Val His
 946 180 185 190
 947 Gln Val Leu Lys Leu Ala Leu Phe Leu Phe Pro Asn Gly Glu Gly Lys
 948 195 200 205
 949 Pro Ala Ala Glu Gly Phe Ala Arg Ala Val Gly Lys Ala Phe Pro Ser
 950 210 215 220
 951 Leu Asp Val Phe Ala Ser Leu Lys Ala Ile Asp Asp Ile Ile Tyr Gln
 952 225 230 235 240
 953 Glu Ile Gln Asp Arg Arg Ser Gln Asp Ile Ser Gly Arg Gln Asp Val
 954 245 250 255
 955 Leu Ser Leu Met Met Gln Ser His Tyr Asp Asp Gly Ser Val Met Thr
 956 260 265 270
 957 Pro Gln Glu Leu Arg Asp Glu Leu Met Thr Leu Leu Met Ala Gly His
 958 275 280 285
 959 Glu Thr Ser Ala Thr Ile Ala Ala Trp Cys Val Tyr His Leu Cys Arg
 960 290 295 300
 961 His Pro Asp Ala Met Gly Lys Leu Arg Glu Glu Ile Ala Ala His Thr

same

RAW SEQUENCE LISTING

DATE: 10/21/2002

PATENT APPLICATION: US/09/710,262D

TIME: 16:29:22

Input Set : N:\CrF4\10182002\I710262D.raw

Output Set : N:\CRF4\10212002\I710262D.raw

```

962      305      310      315      320
963 Val Asp Gly Val Leu Pro Leu Ala Lys Ile Asn Glu Leu Lys Phe Leu
964      325      330      335
965 Asp Ala Val Val Lys Glu Thr Met Arg Ile Thr Pro Val Phe Ser Leu
966      340      345      350
967 Val Ala Arg Val Leu Lys Glu Pro Gln Thr Ile Gly Gly Thr Thr Tyr
968      355      360      365
969 Pro Ala Asn Val Val Leu Ser Pro Asn Ile Tyr Gly Thr His His Arg
970      370      375      380
971 Ala Asp Leu Trp Gly Asp Pro Lys Val Phe Arg Pro Glu Arg Phe Leu
972      385      390      395      400
973 Glu Glu Arg Val Asn Pro Phe His Tyr Phe Pro Phe Gly Gly Gly Ile
974      405      410      415
975 Arg Lys Cys Ile Gly Thr Ser Phe Ala Tyr Tyr Glu Met Lys Ile Phe
976      420      425      430
977 Val Ser Glu Thr Val Arg Arg Met Arg Phe Asp Thr Arg Pro Gly Tyr
978      435      440      445
979 His Ala Lys Val Val Arg Arg Ser Asn Thr Leu Ala Pro Ser Gln Gly
980      450      455      460
981 Val Pro Ile Ile Val Glu Ser Arg Leu Pro Ser
982      465      470      475
984 <210> SEQ ID NO: 14
985 <211> LENGTH: 318
986 <212> TYPE: Amino acid
987 <213> ORGANISM: Myxococcus xanthus
988 <400> SEQUENCE: 14
989 Met Val Asp Ser Val Ser Lys Gln Ala Arg Arg Lys Val Phe Leu Phe
990      1      5      10      15
991 Ser Gly Gln Gly Thr Gln Ser Tyr Phe Met Ala Lys Glu Leu Phe Asp
992      20      25      30
993 Thr Gln Thr Gly Phe Lys Arg Gln Leu Leu Glu Leu Asp Glu Gln Phe
994      35      40      45
995 Lys Gln Arg Leu Gly His Ser Ile Leu Glu Arg Ile Tyr Asp Ala Arg
996      50      55      60
997 Ala Ala Arg Leu Asp Pro Leu Asp Asp Val Leu Val Ser Phe Pro Ala
998      65      70      75      80
999 Ile Phe Met Ile Glu His Ala Leu Ala Arg Leu Leu Ile Asp Arg Gly
1000      85      90      95
1001 Ile Gln Pro Asp Ala Val Val Gly Ala Ser Met Gly Glu Val Ala Ala
1002      100      105      110
1003 Ala Ala Ile Ala Gly Ala Ile Ser Val Asp Ala Ala Val Ala Leu Val
1004      115      120      125
1005 Ala Ala Gln Ala Gln Leu Phe Ala Arg Thr Ala Pro Arg Gly Gly Met
1006      130      135      140
1007 Leu Ala Val Leu His Glu Leu Glu Ala Cys Arg Gly Phe Thr Ser Val
1008      145      150      155      160
1009 Ala Arg Asp Gly Glu Val Ala Ala Ile Asn Tyr Pro Ser Asn Phe Val
1010      165      170      175
1011 Leu Ala Ala Asp Glu Ala Gly Leu Gly Arg Ile Gln Gln Glu Leu Ser

```

Same

④6- >

RAW SEQUENCE LISTING

DATE: 10/21/2002

PATENT APPLICATION: US/09/710,262D

TIME: 16:29:22

Input Set : N:\CrF4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

```

1012          180          185          190
1013  Gln Arg Ser Val Ala Phe His Arg Leu Pro Val Arg Tyr Pro Phe His
1014          195          200          205
1015  Ser Ser His Leu Asp Pro Leu Arg Glu Glu Tyr Arg Ser Arg Val Arg
1016          210          215          220
1017  Ala Asp Ser Leu Thr Trp Pro Arg Ile Pro Met Tyr Ser Cys Thr Thr
1018          225          230          235          240
1019  Ala Asn Arg Val His Asp Leu Arg Ser Asp His Phe Trp Asn Val Val
1020          245          250          255
1021  Arg Ala Pro Ile Gln Leu Tyr Asp Thr Val Leu Gln Leu Glu Gly Gln
1022          260          265          270
1023  Gly Gly Cys Asp Phe Ile Asp Val Gly Pro Ala Ala Ser Phe Ala Thr
1024          275          280          285
1025  Ile Ile Lys Arg Ile Leu Ala Arg Asp Ser Thr Ser Arg Leu Phe Pro
1026          290          295          300
1027  Leu Leu Ser Pro Ser Pro Ala Ser Thr Gly Ser Ser Met Gly
1028          305          310          315
1030 <210> SEQ ID NO: 15
1031 <211> LENGTH: 330
1032 <212> TYPE: Amino acid
1033 <213> ORGANISM: Myxococcus xanthus
1034 <400> SEQUENCE: 15
1035  Met Thr Glu Ala Pro Ala Pro Arg Ala Pro Ala Gln Val Pro Pro Pro
1036      1          5          10          15
1037  Pro Ser Ser Pro Trp Ala Leu His Thr Arg Gly Ala Ala Ser Ala Pro
1038          20          25          30
1039  Val Asn Ala Arg Lys Ala Ala Leu Phe Pro Gly Gln Gly Ser Gln Glu
1040          35          40          45
1041  Arg Gly Met Gly Ala Ala Leu Phe Asp Glu Phe Pro Asp Leu Thr Asp
1042          50          55          60
1043  Ile Ala Asp Ala Ile Leu Gly Tyr Ser Ile Lys Arg Leu Cys Leu Glu
1044          65          70          75          80
1045  Asp Pro Gly Lys Glu Leu Ala Gln Thr Gln Phe Thr Gln Pro Ala Leu
1046          85          90          95
1047  Tyr Val Val Asn Ala Leu Ser Tyr Leu Lys Arg Leu Arg Glu Gly Ala
1048          100          105          110
1049  Glu Gln Pro Ala Phe Val Ala Gly His Ser Leu Gly Glu Tyr Asn Ala
1050          115          120          125
1051  Leu Leu Val Ala Gly Ala Phe Asp Phe Glu Thr Gly Leu Arg Leu Val
1052          130          135          140
1053  Lys Arg Arg Gly Glu Leu Met Ser Gly Ala Ser Gly Gly Thr Met Ala
1054          145          150          155          160
1055  Ala Val Val Gly Cys Asp Ala Val Ala Val Glu Gln Val Leu Arg Asp
1056          165          170          175
1057  Arg Gln Leu Thr Ser Leu Asp Ile Ala Asn Ile Asn Ser Pro Asp Gln
1058          180          185          190
1059  Ile Val Val Ser Gly Pro Ala Gln Asp Ile Glu Arg Ala Arg Gln Cys
1060          195          200          205
1061  Phe Val Asp Arg Gly Ala Arg Tyr Val Pro Leu Asn Val Arg Ala Pro

```

Same

RAW SEQUENCE LISTING

DATE: 10/21/2002

PATENT APPLICATION: US/09/710,262D

TIME: 16:29:22

Input Set : N:\Crif4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

```

1062          210          215          220
1063 Phe His Ser Arg Tyr Met Gln Pro Ala Ala Ser Glu Phe Glu Arg Phe
1064 225          230          235          240
1065 Leu Ser Gln Phe Gln Tyr Ala Pro Leu Arg Cys Val Val Ile Ser Asn
1066          245          250          255
1067 Val Thr Gly Arg Pro Tyr Ala His Asp Asn Val Val Gln Gly Leu Ala
1068          260          265          270
1069 Leu Gln Leu Arg Ser Pro Val Gln Trp Thr Ala Thr Val Arg Tyr Leu
1070          275          280          285
1071 Leu Glu Gln Gly Val Glu Asp Phe Glu Glu Leu Gly Pro Gly Arg Val
1072          290          295          300
1073 Leu Thr Arg Leu Ile Thr Ala Asn Lys Arg Gly Ala Pro Ala Pro Ala
1074          305          310          315          320
1075 Thr Ala Ala Pro Ala Lys Trp Ala Asn Ala
1076          325          330
1078 <210> SEQ ID NO: 16
1079 <211> LENGTH: 417
1080 <212> TYPE: Amino acid
1081 <213> ORGANISM: Myxococcus xanthus
1082 <400> SEQUENCE: 16
1083 Met Ser Thr Ser Pro Val Gln Glu Leu Val Val Ser Gly Phe Gly Val
1084 1          5          10          15
1085 Thr Ser Ala Ile Gly Gln Gly Ala Ala Ser Phe Thr Ser Ala Leu Leu
1086          20          25          30
1087 Glu Gly Ala Ala Arg Phe Arg Val Met Glu Arg Pro Gly Arg Gln His
1088          35          40          45
1089 Gln Ala Asn Gly Gln Thr Thr Ala His Leu Gly Ala Glu Ile Ala Ser
1090          50          55          60
1091 Leu Ala Val Pro Glu Gly Val Thr Pro Gln Leu Trp Arg Ser Ala Thr
1092          65          70          75          80
1093 Phe Ser Gly Gln Ala Ala Leu Val Thr Val His Glu Ala Trp Asn Ala
1094          85          90          95
1095 Ala Arg Leu Gln Ala Val Pro Gly His Arg Ile Gly Leu Val Val Gly
1096          100          105          110
1097 Gly Thr Asn Val Gln Gln Arg Asp Leu Val Leu Met Gln Asp Ala Tyr
1098          115          120          125
1099 Arg Glu Arg Val Pro Phe Leu Arg Ala Ala Tyr Gly Ser Thr Phe Met
1100          130          135          140
1101 Asp Thr Asp Leu Val Gly Leu Cys Thr Gln Gln Phe Ala Ile His Gly
1102          145          150          155          160
1103 Met Ser Phe Thr Val Gly Gly Ala Ser Ala Ser Gly Leu Leu Ala Val
1104          165          170          175
1105 Ile Gln Ala Ala Glu Ala Val Leu Ser Arg Lys Val Asp Val Cys Ile
1106          180          185          190
1107 Ala Val Gly Ala Leu Met Asp Val Ser Tyr Trp Glu Cys Gln Gly Leu
1108          195          200          205
1109 Arg Ala Met Gly Ala Met Gly Thr Asp Arg Phe Ala Arg Glu Pro Glu
1110          210          215          220
1111 Arg Ala Cys Arg Pro Phe Asp Arg Glu Ser Asp Gly Phe Ile Phe Gly

```

same

RAW SEQUENCE LISTING

DATE: 10/21/2002

PATENT APPLICATION: US/09/710,262D

TIME: 16:29:22

Input Set : N:\CrF4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

```

1112      225      230      235      240
1113      Glu Ala Cys Gly Ala Val Val Val Glu Ser Ala Glu His Ala Arg Arg
1114              245              250              255
1115      Arg Gly Val Thr Pro Arg Gly Ile Leu Ser Gly Trp Ala Met Gln Leu
1116              260              265              270
1117      Asp Ala Ser Arg Gly Pro Leu Ser Ser Ile Glu Arg Glu Ser Gln Val
1118              275              280              285
1119      Ile Gly Ala Ala Leu Arg His Ala Asp Leu Ala Pro Glu Arg Val Asp
1120              290              295              300
1121      Tyr Val Asn Pro His Gly Ser Gly Ser Arg Gln Gly Asp Ala Ile Glu
1122              305              310              315              320
1123      Leu Gly Ala Leu Lys Ala Cys Gly Leu Thr His Ala Arg Val Asn Thr
1124              325              330              335
1125      Thr Lys Ser Ile Thr Gly His Gly Leu Ser Ser Ala Gly Ala Val Gly
1126              340              345              350
1127      Leu Ile Ala Thr Leu Val Gln Leu Glu Gln Gly Arg Leu His Pro Ser
1128              355              360              365
1129      Leu Asn Leu Val Asp Pro Ile Asp Ser Ser Phe Arg Trp Val Gly Ala
1130              370              375              380
1131      Thr Ala Glu Ala Gln Ser Leu Gln Asn Ala Leu Val Leu Ala Tyr Gly
1132              385              390              395              400
1133      Phe Gly Gly Ile Asn Thr Ala Val Ala Val Arg Arg Ser Ala Thr Glu
1134              405              410              415
1135      Ser
1137 <210> SEQ ID NO: 17
1138 <211> LENGTH: 262
1139 <212> TYPE: Amino acid
1140 <213> ORGANISM: Myxococcus xanthus
1141 <400> SEQUENCE: 17
1142      Met Gln Ala Ala Ser Pro Pro His Arg Asp Tyr Gln Thr Leu Arg Val
1143              1              5              10              15
1144      Arg Phe Glu Ala Gln Thr Cys Phe Leu Gln Leu His Arg Pro Asp Ala
1145              20              25              30
1146      Asp Asn Thr Ile Ser Arg Thr Leu Ile Asp Glu Cys Gln Gln Val Leu
1147              35              40              45
1148      Thr Leu Cys Glu Glu His Ala Thr Thr Val Val Leu Glu Gly Leu Pro
1149              50              55              60
1150      His Val Phe Cys Met Gly Ala Asp Phe Arg Ala Ile His Asp Arg Val
1151              65              70              75              80
1152      Asp Asp Gly Arg Arg Glu Gln Gly Asn Ala Glu Gln Leu Tyr Arg Leu
1153              85              90              95
1154      Trp Leu Gln Leu Ala Thr Gly Pro Tyr Val Thr Val Ala His Val Gln
1155              100              105              110
1156      Gly Lys Ala Asn Ala Gly Gly Leu Gly Phe Val Ser Ala Cys Asp Ile
1157              115              120              125
1158      Val Leu Ala Lys Ala Glu Val Gln Phe Ser Leu Ser Glu Leu Leu Phe
1159              130              135              140
1160      Gly Leu Phe Pro Ala Cys Val Met Pro Phe Leu Ala Arg Arg Ile Gly
1161              145              150              155              160

```

same

E-16

RAW SEQUENCE LISTING

DATE: 10/21/2002

PATENT APPLICATION: US/09/710,262D

TIME: 16:29:22

Input Set : N:\CrF4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

```

1162   Ile Gln Arg Ala His Tyr Leu Thr Leu Met Thr Arg Pro Ile Asp Ala
1163           165                      170                      175
1164   Ala Gln Ala Leu Ser Trp Gly Leu Ala Asp Ala Val Asp Ala Asp Ser
1165           180                      185                      190
1166   Glu Lys Leu Leu Arg Leu His Leu Arg Arg Leu Arg Cys Leu Ser Lys
1167           195                      200                      205
1168   Pro Ala Val Thr Gln Tyr Lys Lys Tyr Ala Ser Glu Leu Gly Gly Gln
1169           210                      215                      220
1170   Leu Leu Ala Ala Met Pro Arg Ala Ile Ser Ala Asn Glu Ala Met Phe
1171           225                      230                      235                      240
1172   Ser Asp Arg Ala Thr Leu Glu Ala Ile His Arg Tyr Val Glu Thr Gly
1173           245                      250                      255
1174   Arg Leu Pro Trp Glu Ser
1175           260
1177 <210> SEQ ID NO: 18
1178 <211> LENGTH: 256
1179 <212> TYPE: Amino acid
1180 <213> ORGANISM: Myxococcus xanthus
EG 1181 <400> SEQUENCE: 18
1182   Met Gly Ile Met Thr Glu Gly Thr Pro Met Ala Pro Val Val Thr Leu
1183           1           5                      10                      15
1184   His Glu Val Glu Glu Gly Val Ala Gln Ile Thr Leu Val Asp Arg Glu
1185           20                      25                      30
1186   Asn Lys Asn Met Phe Ser Glu Gln Leu Val Arg Glu Leu Ile Thr Val
1187           35                      40                      45
1188   Phe Gly Lys Val Asn Gly Asn Glu Arg Tyr Arg Ala Val Val Leu Thr
1189           50                      55                      60
1190   Gly Tyr Asp Thr Tyr Phe Ala Leu Gly Gly Thr Lys Ala Gly Leu Leu
1191           65                      70                      75                      80
1192   Ser Ile Cys Asp Gly Ile Gly Ser Phe Asn Val Thr Asn Phe Tyr Ser
1193           85                      90                      95
1194   Leu Ala Leu Glu Cys Asp Ile Pro Val Ile Ser Ala Met Gln Gly His
1195           100                     105                     110
1196   Gly Val Gly Gly Gly Phe Ala Met Gly Leu Phe Ala Asp Phe Val Val
1197           115                     120                     125
1198   Leu Ser Arg Glu Ser Val Tyr Thr Thr Asn Phe Met Arg Tyr Gly Phe
1199           130                     135                     140
1200   Thr Pro Gly Met Gly Ala Thr Tyr Ile Val Pro Lys Arg Leu Gly Tyr
1201           145                     150                     155                     160
1202   Ser Leu Gly His Glu Leu Leu Leu Asn Ala Arg Asn Tyr Arg Gly Ala
1203           165                     170                     175
1204   Asp Leu Glu Lys Arg Gly Val Pro Phe Pro Val Leu Pro Arg Lys Glu
1205           180                     185                     190
1206   Val Leu Pro His Ala Tyr Glu Ile Ala Arg Asp Leu Ala Ala Lys Pro
1207           195                     200                     205
1208   Arg Leu Ser Leu Val Thr Leu Lys Arg His Leu Val Arg Asp Ile Arg
1209           210                     215                     220
1210   Arg Glu Leu Pro Asp Val Ile Glu Arg Glu Leu Glu Met His Gly Ile
1211           225                     230                     235                     240

```

same

RAW SEQUENCE LISTING

DATE: 10/21/2002

PATENT APPLICATION: US/09/710,262D

TIME: 16:29:22

Input Set : N:\Crif4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

1212 Thr Phe His His Asp Asp Val Arg Arg Arg Ile Glu Gln Leu Phe Leu
 1213 245 250 255
 1215 <210> SEQ ID NO: 19
 1216 <211> LENGTH: 424
 1217 <212> TYPE: Amino acid
 1218 <213> ORGANISM: Myxococcus xanthus
 1219 <400> SEQUENCE: 19
 1220 Met Leu Asn Leu Ile Asn Asn His Ala His Gly Tyr Val Val Thr Pro
 1221 1 5 10 15
 1222 Val Val Leu Ala Cys Asn Asp Ala Gly Leu Phe Glu Leu Leu Arg Gln
 1223 20 25 30
 1224 Gly Pro Lys Asp Phe Asp Arg Leu Ala Glu Ala Leu Arg Ala Asn Arg
 1225 35 40 45
 1226 Gly His Leu Arg Val Ala Met Arg Met Phe Glu Ser Leu Gly Trp Val
 1227 50 55 60
 1228 Arg Arg Asp Ala Asp Asp Val Tyr Ala Val Thr Ala Ala Ala Ala
 1229 65 70 75 80
 1230 His Arg Ser Phe Pro Arg Glu Ala Gln Ser Leu Phe Ala Leu Pro Met
 1231 85 90 95
 1232 Asp Arg Tyr Leu Arg Gly Glu Asp Gly Leu Ser Leu Ala Pro Trp Phe
 1233 100 105 110
 1234 Glu Arg Ser Arg Ala Ser Trp Asp Thr Asp Asp Thr Leu Val Arg Glu
 1235 115 120 125
 1236 Leu Leu Asp Gly Ala Ile Ile Thr Pro Leu Met Leu Ala Leu Glu Gln
 1237 130 135 140
 1238 Arg Gly Gly Leu Lys Glu Ala Arg Arg Leu Ser Asp Leu Trp Ser Gly
 1239 145 150 155 160
 1240 Gly Asp Gly Arg Asp Thr Cys Val Pro Glu Ala Val Gln His Glu Leu
 1241 165 170 175
 1242 Ala Gly Phe Phe Ser Ala Gln Lys Trp Thr Arg Glu Asp Ala Val Asp
 1243 180 185 190
 1244 Ala Glu Leu Thr Pro Lys Gly Ala Phe Ile Phe Glu Arg Ala Leu Leu
 1245 195 200 205
 1246 Phe Ala Ile Val Gly Ser Tyr Arg Pro Met Leu Ala Ser Met Pro Gln
 1247 210 215 220
 1248 Leu Leu Phe Gly Asp Cys Asp Gln Val Phe Gly Arg Asp Glu Ala Gly
 1249 225 230 235 240
 1250 His Glu Leu His Leu Asp Arg Thr Leu Asn Val Ile Gly Ser Gly His
 1251 245 250 255
 1252 Gln His Arg Lys Tyr Phe Ala Glu Leu Glu Lys Leu Ile Ile Thr Val
 1253 260 265 270
 1254 Phe Asp Ala Glu Asn Leu Ser Ala Gln Pro Arg Tyr Ile Ala Asp Met
 1255 275 280 285
 1256 Gly Cys Gly Asp Gly Thr Leu Leu Lys Arg Val Tyr Glu Thr Val Leu
 1257 290 295 300
 1258 Arg His Thr Arg Arg Gly Arg Ala Leu Asp Arg Phe Pro Leu Thr Leu
 1259 305 310 315 320
 1260 Ile Ala Ala Asp Phe Asn Glu Lys Ala Leu Glu Ala Ala Gly Arg Thr
 1261 325 330 335

same

RAW SEQUENCE LISTING

DATE: 10/21/2002

PATENT APPLICATION: US/09/710,262D

TIME: 16:29:22

Input Set : N:\Cr4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

1262 Leu Ala Gly Leu Glu His Val Ala Leu Arg Ala Asp Val Ala Arg Pro
1263 340 345 350
1264 Asp Arg Leu Ile Glu Asp Leu Arg Ala Arg Gly Leu Ala Glu Pro Glu
1265 355 360 365
1266 Asn Thr Leu His Ile Arg Ser Phe Leu Asp His Asp Arg Pro Tyr Gln
1267 370 375 380
1268 Pro Pro Ala Asp Arg Ala Gly Leu His Ala Arg Ile Pro Phe Asp Ser
1269 385 390 395 400
1270 Val Phe Val Gly Lys Ala Gly Gln Glu Val Val Pro Ala Glu Val Phe
1271 405 410 415
1272 His Ser Leu Val Glu His Leu Glu
1273 420

Same

VERIFICATION SUMMARY

DATE: 10/21/2002

PATENT APPLICATION: US/09/710,262D

TIME: 16:29:23

Input Set : N:\Crf4\10182002\I710262D.raw

Output Set: N:\CRF4\10212002\I710262D.raw

L:7 M:270 C: Current Application Number differs, Wrong Format

L:16 M:310 E: (3) Wrong or Missing Sequence Type, TYPE:

L:448 M:310 E: (3) Wrong or Missing Sequence Type, TYPE:

L:554 M:310 E: (3) Wrong or Missing Sequence Type, TYPE:

L:627 M:310 E: (3) Wrong or Missing Sequence Type, TYPE:

L:671 M:310 E: (3) Wrong or Missing Sequence Type, TYPE:

L:699 M:310 E: (3) Wrong or Missing Sequence Type, TYPE:

L:715 M:310 E: (3) Wrong or Missing Sequence Type, TYPE:

L:775 M:310 E: (3) Wrong or Missing Sequence Type, TYPE:

L:823 M:310 E: (3) Wrong or Missing Sequence Type, TYPE:

L:840 M:310 E: (3) Wrong or Missing Sequence Type, TYPE:

L:894 M:310 E: (3) Wrong or Missing Sequence Type, TYPE:

L:922 M:310 E: (3) Wrong or Missing Sequence Type, TYPE:

L:988 M:310 E: (3) Wrong or Missing Sequence Type, TYPE:

L:1034 M:310 E: (3) Wrong or Missing Sequence Type, TYPE:

L:1082 M:310 E: (3) Wrong or Missing Sequence Type, TYPE:

L:1141 M:310 E: (3) Wrong or Missing Sequence Type, TYPE:

L:1181 M:310 E: (3) Wrong or Missing Sequence Type, TYPE:

L:1219 M:310 E: (3) Wrong or Missing Sequence Type, TYPE: